

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

William Y. Conwell

Application No.: 09/670,113

Filed: September 26, 2000

For: METHOD OF PROCESSING TEXT
FOUND IN IMAGES

Examiner: Tucker, Wesley J

Date: May 8, 2009

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REQUEST FOR REHEARING

Appeal 2009-0153

Sir:

On March 9, 2009, the Board issued its decision in the captioned application.

Appellant requests reconsideration of the decision affirming the § 102 rejections of claims 3, 5, 16, 18-20 and 23, and the § 103 rejections of claims 10-15 and 17.

(No fee is believed due. However, if a fee is due, appellant authorizes charging of same to deposit account 50-1071.)

Imperceptible vs. Inaccessible

The Board found that a bar code taught by Li – while “overt and conspicuous” – nonetheless anticipates the “watermark” recited in claim 3. The Board explained:

[T]he underlying information represented by the bar code essentially remains “hidden” or imperceptible to the user until it is read by a scanner. For example, data identifying products in grocery stores are typically bar coded directly on the products themselves. If a consumer merely views the bar code itself, the underlying data represented by that barcode is not readily apparent to the consumer; all the consumer sees is the code. It is only until the barcode is actually read by a machine that the corresponding data is analyzed and the pricing information is revealed (unless it is otherwise displayed). Thus, while the *barcode itself* is readily apparent to the user, the *underlying information* associated with the barcode is imperceptible to the user until read by a machine. As such, this underlying information is, in effect, an encoded “watermark.”¹

Appellant respectfully submits that this statement - on which the Decision is founded - is erroneous.

The error mixes the concepts of (a) information that is inaccessible, versus (b) information whose very existence is hidden. The difference may be subtle, but is important.

An example of information that is inaccessible is a printed hieroglyph of a lost language. The symbol is perceptible, but its meaning is inaccessible. Another example is encrypted text, e.g., “opu qmbjoufyu.”² Data is conspicuously present, but its informational value cannot be accessed without knowing the key to the encryption.

¹ Decision on Appeal, 2009-0153, page 10.

² This is the phrase “*not plaintext*” encrypted by changing “a” to “b,” “b” to “c,” and so forth.

A barcode falls into this class. The printed code is conspicuous, and evidently represents some information. However, the represented information is generally inaccessible.³

A watermark falls into the *other* class: information whose very presence is hidden. That is, an observer is not even aware that a watermark is present.

The key feature of a watermark is that it escapes notice. The senses don't perceive it.

Aesthetically, a watermark does not impair the host image in which it is encoded, because its presence is hidden. Security-wise, a watermark escapes attack because an attacker will not attack information unless he first knows that information is present.

A bar code is not a watermark because its presence is evident.

In Findings of Fact 2-5,⁴ the Board quoted incorporated-by-reference Rhoads patent 6,614,914, regarding the meaning of the term “watermark.” Each of the quoted instances uses the term “imperceptible” (or “visually imperceptible”) in describing a watermark.

“Perception” is an act of the senses (e.g., vision). It should not be confused with understanding – an act of the brain.

A watermark is imperceptible. The senses do not perceive it. In contrast, a barcode is perceptible. The senses perceive it.

³ Some individuals reputedly can decode simple barcodes.

⁴ Decision on Appeal, 2009-0153, pages 4-5.

It is also important to recognize that the incorporated-by-reference Rhoads patent distinguished the *watermark* from the watermark's *payload* (or *message*). The *watermark* (which may be a pattern of luminance variations in an image) is a signal that serves as a *carrier* of information. The watermark *payload* (*message*) (e.g., a string of bits) is the *information* being conveyed.⁵

Li has a similar dichotomy. The printed barcode (a pattern of black and white lines or squares) is a *carrier* of information. The barcode *payload* (e.g., a string of bits) is the *information* being conveyed.

The difference is the perception of the *carrier* of the information. The watermark carrier is imperceptible. The barcode carrier is not.

The meaning ascribed to “watermark” by the Board conflicts with Finding of Fact #5. This finding notes that Rhoads cites an exemplary watermarking technique in which Digimarc's PictureMarc product embeds a “visually imperceptible signal into a digital still image.” A barcode is not “visually imperceptible.” It is visually perceptible, albeit with an inaccessible meaning.

Because a bar code is visually perceptible – because its presence is readily perceived – it cannot anticipate the claimed “watermark.”

⁵ See, e.g., the paragraph bridging columns 4 and 5 of patent 6,614,914, which explains that the watermark signal can have various components – each serving one or more purposes. A primary function of one component is “*acting as an information carrier to convey a message*.” Scanning the specification for the term “message” further evidences the dichotomy: that the watermark is a *carrier* of a *message*.

Conflict with Board Decision in Appeal 2007-4254

In a previous case involving the present assignee, the Board concluded that a barcode is *not* a watermark. The Board's present decision does not refer to the earlier BPAI decision; perhaps it was not considered.

In Appeal 2007-4254, the Board (APJs Crawford, Lorin and O'Neill) concluded as follows:

For claims 1, 9, 11, 15-17, 21, and 30 the issue of whether the Appellants have shown error turns on whether a machine readable bar code fits within the definition of a digital watermark as defined by the Appellants' Specification.⁶

...

We will not sustain the Examiner's rejection of claims 1, 9, 11, 15-17, 21, and 30. As pointed out by the Appellants throughout the Brief, the Examiner erred in stating a bar code reads on a digital watermark. As we understand digital watermarks and bar codes from the perspective of one of ordinary skill in the art, the evidence would suggest that one of ordinary skill would not equate the two. A digital watermark is embedded in the media (e.g. images, audio signals, video signals, software documents, software). (Finding of Fact 1.) A bar code is a band of printed horizontal strip of vertical bars of varying widths, groups of which represent decimal digits and are used for identifying objects (e.g. commercial products, inventory, asset information (for instance, PTO's computer property assigned to an employee)) that is placed on the object or media. (Finding of Fact 3.) A digital watermark is imperceptible or nearly imperceptible to a user hence from a practical standpoint the watermark is hidden from the user, whereas a bar code is perceptible and not hidden. As such, though both digital watermarks and bar codes have a common characteristic of being read by a machine to one skilled in the art they are not the same or equivalent structures because of the differences as stated in the Appellants' Brief as well and *supra*.⁷

⁶ Decision on Appeal, 2007-4254, page 8.

⁷ Decision on Appeal, 2007-4254, page 14.

(The Decision in Appeal 2007-4254 was issued on January 31, 2008. Appellant submitted a copy of the Decision for consideration in the present appeal five days later, on February 5, 2008.)

The Board's statement in the earlier appeal applies here as well: "*The Examiner erred in stating a bar code reads on a digital watermark.*"

Of course, the prior decision must be considered in light of its facts. The meaning given the term "watermark" depends on the specification of the prior case. However, there – as here, applicants incorporated-by-reference the commonly-owned Rhoads patent 6,614,914 for teachings about watermark technology. In particular, the prior case (which has since issued as patent 7,502,759) noted:

Several particular watermarking techniques have been developed. The reader is presumed to be familiar with the literature in this field. Particular techniques for embedding and detecting imperceptible watermarks in media signals are detailed in the assignee's co-pending U.S. Application No. 09/503,881 and U.S. Patent No. 6,122,403, which are herein incorporated by reference.

Cited application 09/503,881 matured into patent 6,614,914. Thus, the earlier appeal and the present appeal are similarly founded on the meaning of "watermark" provided by the '914 patent.

The Board is requested to reconsider the present decision in view of the Board's contrary holding in the prior appeal, namely:

A digital watermark is imperceptible or nearly imperceptible to a user hence from a practical standpoint the watermark is hidden from the user, whereas a bar code is perceptible and not hidden. As such, though both digital watermarks and bar codes have a common characteristic of being read by a machine, to one skilled in the art they are not the same...

In re Nuijten

During pendency of the present appeal, the Federal Circuit decided *In re Nuijten*, 500 F.3d 1346 (2007). Nuijten's invention involved audio watermarking technology.

In footnote 5 of the present Decision, the Board quoted *Nuijten* as being in accord with its interpretation of the term watermark:

("[W]atermarking is a technique by which an original signal (such as a digital audio file) is manipulated so as to embed within it additional data. The additional data is *preferably imperceptible* to someone who views or listens to the signal However, an analysis of the file by software capable of detecting the watermark will reveal the mark's contents.")

However, a sentence omitted from the quoted passage – and represented by ellipses – is informative. So is the Federal Circuit's ensuing discussion. In unabridged form the Federal Circuit's discussion reads:

In the context of signal processing, watermarking is a technique by which an original signal (such as a digital audio file) is manipulated so as to embed within it additional data. The additional data is preferably imperceptible to someone who views or listens to the signal—for instance, a listener who plays back a watermarked digital audio file would, if the watermark is sufficiently unobtrusive, not be able to distinguish between the watermarked and unwatermarked versions. However, an analysis of the file by software capable of detecting the watermark will reveal the mark's contents. This ability to encode additional data into a signal is useful to publishers of sound and video recordings, who can use watermarks to embed in the media they distribute information intended to protect that media against unauthorized copying. For these publishers and others,

watermarking represents a trade-off: the desired additional data is encoded directly into the signal, but like any change to a signal, the watermark introduces some level of distortion. Thus, a key goal of watermarking techniques is to minimize the distortion so that the resulting diminution in signal quality is as minimal as possible.⁸

As indicated by the Federal Circuit, the consumer of watermarked content desirably should “*not be able to distinguish between the watermarked and unwatermarked versions.*”

A bar code fails in this respect. A viewer of images with – and without – a barcode can readily distinguish the two versions. (As the present Board noted, a bar code is overt and conspicuous.⁹)

Similarly, the Federal Circuit noted that a key goal of watermarking is to minimize distortion “*so that the resulting diminution in signal quality is as minimal as possible.*” Again, this is at odds with Li’s bar codes, which are “overtly and conspicuously emblazoned on their corresponding documents.”¹⁰

Conclusion

The Board is requested to reconsider its decision. Correctly applied, the claimed “watermark” is not anticipated by Li’s barcode. As such, the Section 102 rejections of claims 3, 5, 16, 18-20 and 23 based on Li should be reversed. Similarly, the Section 103 rejections of claims 10-15 and 17 should also be reversed.

⁸ *In re Nuijten*, slip opinion, page 2 (underlining added).

⁹ Decision on Appeal, 2009-0153, page 10, bottom paragraph.

¹⁰ *Ibid.*

Action to this end is solicited.

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Respectfully submitted,

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